

1764  
W.R. Grace & Co.-Conn.  
Patent Dept.  
7500 Grace Drive  
Columbia, MD 21044

AMENDMENT TRANSMITTAL FORM

Attorney Docket No. W9484-01

In re application of: **Chester et al.**

Serial No. 09/468,450

Filed: December 21, 1999

Group Art Unit: 1764

Examiner: Norton, Nadine G.

For: **A CATALYTIC CRACKING PROCESS USING A MODIFIED MESOPOROUS ALUMINOPHOSPHATE MATERIAL**

MAIL STOP: FINAL RESPONSE  
COMMISSIONER FOR PATENTS  
P.O. BOX 1450  
ALEXANDRIA, VA 22313-1450

Transmitted herewith is an amendment/response in the above-identified application.

- ☒ NO ADDITIONAL FEE IS REQUIRED.  
☐ The fee for any changes in number of claims has been calculated below:

CLAIMS AS AMENDED

(1)	(2) Claims Remaining After Amendment	(3)	(4) Highest No. Previously Paid For	(5) Present Extra	(6) Rate	Additional Fee
Total Claims		Minus	**	*0	\$18.00	\$ 0.00
Indep. Claims		Minus	***	*	\$80.00	\$ 0.00
			****For Multiple Dependent Claims Add:		\$270.00	\$
					<b>TOTAL FEE DUE:</b>	\$ 0.00

\*If the entry in Column 2 is less than the entry in Column 4, write "0" in Column 5.

\*\*If the "Highest Number Previously Paid for" IN THIS SPACE is less than 20, write "20" in this space.

\*\*\*If the "Highest Number Previously Paid for" IN THIS SPACE is less than 3, write "3" in this space.

\*\*\*\*Multiple Dependent Claim fee is only paid once.

- ☐ Please charge \$\_\_\_\_\_ to Deposit Account No. 07-1770.  
Two extra copies of this sheet are enclosed.
- ☒ The Commissioner is hereby authorized to charge any additional fees under 37 CFR 1.16 and 1.17 which may be required, or credit any overpayment, to Deposit Account No. 07-1770. **Two extra copies of this form are enclosed.**

August 15, 2000  
Date of Signature

Charles A. Cross  
Charles A. Cross-Reg. No. 32,406  
Telephone: 410-531-4518

Product Code: DAV/FCC



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of : Date: August 15, 2003  
Chester et al. : Group Art Unit: 1764  
Serial No.: 09/468,450 : Examiner: Norton, Nadine G.  
Filed: December 21, 1999 : Docket No.: 10208-1  
(W9484-01)

For: A CATALYTIC CRACKING PROCESS USING A MODIFIED  
MESOPOROUS ALUMINOPHOSPHATE MATERIAL

A REQUEST FOR RECONSIDERATION

Mail Stop:  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Dear Sir:

Applicants request reconsideration of the rejections stated in the May 15, 2003, Office Action pending in the above-mentioned patent application.

Specifically, it is stated in the Office Action that claims 1-4 are rejected under 35 USC §102(b) as being anticipated by Kearby (U.S. Patent 3,271,299). Applicants respectfully request reconsideration and withdrawal of that rejection.

Specifically, it is stated in the Office Action that it is considered that Kearby's disclosure of an amorphous aluminophosphate and alumina constitutes Applicants' amorphous aluminophosphate and primary cracking component as recited in claim 1. Applicants, however, respectfully disagree. The Examiner has specifically referred to the alumina disclosed on column 13, line 1 of Kearby.

**CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8**

Pursuant to 37 CFR §1.8, I hereby certify that I have a reasonable basis to expect that this correspondence will be deposited with the United States Postal Service on or before the date indicated, as First Class mail, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date

Signature

Therein, Kearby discloses an aluminum phosphate/alumina gel support for a *hydrogenation catalyst*, which further contains nickel oxide. It is respectfully submitted that the use of this catalyst for hydrogenation does not anticipate the subject matter of Applicants' claims 1-4. Applicants' claims 1-4 recite a process for catalytic cracking of hydrocarbon feedstock. Accordingly, Applicants respectfully request withdrawal of the §102(b) rejection of these claims.

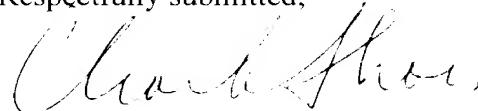
It is also respectfully submitted that the cracking process recited in Applicants' claims employs aluminum phosphate compositions modified with zirconium, cerium, lanthanum, manganese, cobalt, zinc or vanadium, and Kearby does not suggest using such a metal-modified aluminum phosphate as a catalyst in a cracking process. Indeed, it is submitted Kearby at best suggests using metal-modified aluminum phosphate for hydrogenation processes. Moreover, it is Applicants' belief that combining alumina in combination with aluminum phosphate and nickel oxide as described by Kearby would not produce a very effective cracking catalyst, and that his disclosure of using only 33% alumina certainly would not suggest using alumina as a "primary" cracking catalyst. Indeed, it is submitted that Kearby's nickel component is the active component of this catalyst (see Col. 1, line 22) and that the alumina is a "co-support" (Col. 12, lines 26-32). Therefore, Kearby would not anticipate or suggest the addition of a primary catalytic cracking catalyst to an aluminum phosphate modified with metal, much less suggest combining the two materials in any particular ratio for use as a cracking catalyst. Accordingly, Applicants also respectfully request reconsideration and withdrawal of the 35 USC §103(a) obviousness rejection of claim 6 based on Kearby.

Finally, it is stated in this Office Action that claim 9 is rejected under 35 USC §103 as being unpatentable over Kearby as applied in claims 1-4 and 6, further in view of Zinnen (U.S. Patent 5,935,422). Applicants respectfully request reconsideration and withdrawal of this rejection. It is stated in the Office Action that Zinnen is cited to show that those of ordinary skill in the art know that cracking feeds routinely contain sulfur. Applicants do not contest this position. However, it is respectfully submitted that neither Zinnen nor Kearby suggest employing a metal-modified aluminum phosphate material as recited in Applicants' claims in combination with a primary catalytic cracking catalyst to

reduce sulfur during a cracking process. As mentioned above, Kearby does not disclose or suggest a combination of those materials for catalytic cracking. Zinnen goes no further because he merely discloses zeolite Y-type adsorbents for use in treating sulfur-containing feeds, e.g., *prior to* cracking the feedstock. Accordingly, it is not seen where one of ordinary skill in the art would glean from either reference that Applicants' invention would be obvious. Indeed, it is again submitted that Kearby is silent with respect to sulfur content in FCC feed, and merely mentions that aluminum phosphate can be used to crack hydrocarbons. Zinnen goes no further in suggesting such a combination because Zinnen does not refer to reducing sulfur during a cracking process, much less disclose materials chemically similar to the aluminum phosphate materials disclosed by Kearby.

In view of the above remarks, Applicants submit that Applicants' claims are in condition for allowance and respectfully request notification to that effect in the form of a Notice of Allowability.

Respectfully submitted,



Charles A. Cross  
Attorney for Applicant  
Reg. No. 32,406

W. R. Grace & Co.-Conn.  
7500 Grace Drive  
Columbia, Maryland 21044  
Tel: (410) 531-4518

CAC:dpd

Charge: DAV/FCC